SECTION 3— TECHNICAL DATA

TECHNICAL CHARACTERISTICS

Tables 3 and 4 describe the technical characteristics of the ATS48 controller. The information is based on operation at a maximum ambient temperature of 40 °C without a shorting/bypass contactor and at 50 °C with a shorting/bypass contactor.

The ATS48 controller can be used in an ambient temperature of up to 60 °C as long as the maximum current rating for Class 10 thermal overload protection is derated by 2% for each degree above 40 °C without a shorting/bypass contactor or by 2% for each degree above 50 °C with a shorting/bypass contactor. The nominal motor current I_N must not exceed the maximum current rating for Class 10 thermal overload protection.

Table 3: Standard Duty Application, 208 to 690 V Supply (+10% to –15%, 50 or 60 Hz)

hp @ 208 V	hp @ 230 V	kW @ 440 V	hp @ 460 V	kW @ 500 V	hp @ 575 V	kW @ 690 V	Max. Current Rating for Class 10 Thermal Overload Protection	I_{CL} Rating	Catalog Number
3	5	7.5	10	9	15	15	17	17	ATS48D17Y
5	7.5	11	15	11	20	18.5	22	22	ATS48D22Y
7.5	10	15	20	18.5	25	22	32	32	ATS48D32Y
10	—	18.5	25	22	30	30	38	38	ATS48D38Y
—	15	22	30	30	40	37	47	47	ATS48D47Y
15	20	30	40	37	50	45	62	62	ATS48D62Y
20	25	37	50	45	60	55	75	75	ATS48D75Y
25	30	45	60	55	75	75	88	88	ATS48D88Y
30	40	55	75	75	100	90	110	110	ATS48C11Y
40	50	75	100	90	125	110	140	140	ATS48C14Y
50	60	90	125	110	150	160	170	170	ATS48C17Y
60	75	110	150	132	200	200	210	210	ATS48C21Y
75	100	132	200	160	250	250	250	250	ATS48C25Y
100	125	160	250	220	300	315	320	320	ATS48C32Y
125	150	220	300	250	350	400	410	410	ATS48C41Y
150	—	250	350	315	400	500	480	480	ATS48C48Y
—	200	355	400	400	500	560	590	590	ATS48C59Y
200	250	400	500	—	600	630	660	660	ATS48C66Y
250	300	500	600	500	800	710	790	790	ATS48C79Y
350	350	630	800	630	1000	900	1000	1000	ATS48M10Y
400	450	710	1000	800	1200	—	1200	1200	ATS48M12Y

Table 4: Severe Duty Application, 208 to 690 V Supply (+10% to –15%, 50 or 60 Hz)

hp @ 208 V	hp @ 230 V	kW @ 440 V	hp @ 460 V	kW @ 500 V	hp @ 575 V	kW @ 690 V	Max. Current Rating for Class 10 Thermal Overload Protection	I_{CL} Rating	Catalog Number
2	3	5.5	7.5	7.5	10	11	12	17	ATS48D17Y
3	5	7.5	10	9	15	15	17	22	ATS48D22Y
5	7.5	11	15	11	20	18.5	22	32	ATS48D32Y
7.5	10	15	20	18.5	25	22	32	38	ATS48D38Y
10	—	18.5	25	22	30	30	38	47	ATS48D47Y
—	15	22	30	30	40	37	47	62	ATS48D62Y
15	20	30	40	37	50	45	62	75	ATS48D75Y
20	25	37	50	45	60	55	75	88	ATS48D88Y
25	30	45	60	55	75	75	88	110	ATS48C11Y
30	40	55	75	75	100	90	110	140	ATS48C14Y
40	50	75	100	90	125	110	140	170	ATS48C17Y
50	60	90	125	110	150	160	170	210	ATS48C21Y
60	75	110	150	132	200	200	210	250	ATS48C25Y
75	100	132	200	160	250	250	250	320	ATS48C32Y
100	125	160	250	220	300	315	320	410	ATS48C41Y
125	150	220	300	250	350	400	410	480	ATS48C48Y
150	—	250	350	315	400	500	480	590	ATS48C59Y
—	200	355	400	400	500	560	590	660	ATS48C66Y
200	250	400	500	—	600	630	660	790	ATS48C79Y
250	300	500	600	500	800	710	790	1000	ATS48M10Y
350	350	630	800	630	1000	900	1000	1200	ATS48M12Y

SPECIFICATIONS

Table 5: Environmental Characteristics

Degree of protection	• IP20 for ATS48D17Y to C11Y • IP00 for ATS48C14Y to M12Y
Shock resistance	Conforms to IEC 60068-2-27: • 15 g, 11 ms
Vibration resistance	Conforms to IEC 60068-2-6, NCF 20706 and BV1: • 15 mm peak from 2 to 13 Hz • 1 gn from 13 to 200 Hz
Soft starter audible noise level	Audible noise measurements taken from 3 ft (1 m) away. The noise levels may change depending on the fan characteristics: • ATS48D17Y to D47Y: 52 dBA • ATS48D62Y to C11Y: 58 dBA • ATS48C14Y to C17Y: 50 dBA • ATS48C21Y to C32Y: 54 dBA • ATS48C41Y to C66Y: 55 dBA • ATS48C79Y to M12Y: 60 dBA
Resistance to electrostatic discharges	Conforms to IEC 61000-4-2, Level 3
Immunity to radio-electric interference	Conforms to IEC 61000-4-3, Level 3
Immunity to rapid electrical transients	Conforms to IEC 61000-4-4, Level 4

Table 5: Environmental Characteristics *(continued)*

Ambient air temperature	Storage: • -13 to +158 °F (-25 to +70 °C) Operation: • 14 to +104 °F (-10 °C to +40 °C) without derating. • Up to +140 °F (+60 °C), derate the current by 2% for each °C above 40 °C. • 14 to 122 °F (-10 °C to +50 °C) with user provided shorting/bypass contactor.
Maximum relative humidity	95% without condensation or dripping water conforming to IEC 60068-2-3
Maximum ambient pollution	Conforms to IEC 60664-1, Pollution Degree 3
Maximum operating altitude	3300 ft (1000 m) without derating. Above this, derate the nominal current by 2.2% for each additional 330 ft (100 m) to a maximum of 6600 ft (2000 m).
Operating position	Maximum vertical inclination ±10° with respect to the normal mounting position.

Table 6: Electrical Characteristics

Operating category	Conforms to IEC 60947-4-2, AC-53a
Three-phase supply voltage	208 Vac -15% to 690 Vac +10%, 50/60 Hz
Frequency	Automatic sensing (preset), ±5%: • 60 Hz: 56.6 to 63.8 Hz • 50 Hz: 47.6 to 52.6 Hz Manual selection, ±20%: • 50 Hz: 40 to 60 Hz • 60 Hz: 48 to 72 Hz
Rated current (I_{CL})	21 device ratings, 17 to 1200 A
Silicon control rectifiers (SCRs)	1800 V peak inverse voltage (PIV) rating
Motor power	3 to 1200 hp
Motor voltage	208 / 230 / 380 / 460 / 575 / 690 Vac
Soft starter control circuit supply voltage	110 Vac -15% to 230 Vac, 50/60 Hz
Maximum control circuit consumption (with fans operating)	• ATS48D17Y to C17Y: 30 W • ATS48C21Y to C32Y: 50 W • ATS48C41Y to M12Y: 80 W
Protection	• Integrated thermal I^2t protection for motor (Class 2, 10, 10A, 15, 20, 25, 30 or no protection) and/or thermal protection with positive temperature coefficient (PTC) probes. • Motor underload settings • Current overload settings • Phase reversal • Phase loss • Automatic restart

The ATS48 controllers conform to IEC 60947-4-2 (EMC). In steady state, they emit a level of interference below the allowable levels defined in the standard.

Table 7: Electromagnetic Compatibility (EMC)

	Standards	Test Levels	Examples (sources of interference)
Immunity tests	IEC 61000-4-2, Level 3 Electrostatic discharge: • through contact • through air	 6 kV 8 kV	Contact with an electrically charged person
	IEC 61000-4-3, Level 3 Radiated electromagnetic fields	10 V/m	Equipment transmitting radio frequencies
	IEC 61000-4-5, Level 4 Rapid electrical transients: • Power supply cables • Control supply cables	 4 kV 2 kV	Opening/closing of a contactor
	IEC 61000-4-5, Level 3 Shock wave: • Phase-to-Phase • Phase-to-Ground	 1 kV 2 kV	—
	IEC 61000-4-12, Level 3 Damped oscillating waves	1 kV – 1 MHz	Oscillating circuit on the line supply
Radiated and conducted emissions	IEC 60947-4-2, Class A		
	IEC 60947-4-2, Class B on soft starters up to 170 A (ATS48D17Y to C17Y) shorting/bypass contactors must be used.		

Fuse selections in Table 8 are based upon 150% of nominal motor current. Ferraz-Shawmut fuses are recommended for the overcurrent protective device (OCPD).

Table 8: Short Circuit Protection Device (Type 1 Coordination)

Catalog Number	Fuse Class (Time Delay)	Short Circuit Current Rating @ 575 V (A)	Recommended OCPD Rating (A) @			
			208 V	230 V	460 V	575 V
ATS48D17Y	J	5000	15	20	20	25
ATS48D22Y	J	5,000	25	30	30	30
ATS48D32Y	J	5,000	35	40	40	40
ATS48D38Y	J	5,000	45	—	50	45
ATS48D47Y	J	5,000	—	60	60	60
ATS48D62Y	J	5,000	70	80	80	80
ATS48D75Y	J	10,000	90	100	100	90
ATS48D88Y	J	10,000	110	125	110	110
ATS48C11Y	J	10,000	125	150	150	150
ATS48C14Y	J	10,000	175	200	175	175
ATS48C17Y	J	10,000	200	225	225	225
ATS48C21Y	J	10,000	250	300	250	300
ATS48C25Y	J	18,000	300	350	350	350
ATS48C32Y	J	18,000	400	450	450	400
ATS48C41Y	J	18,000	500	500	600	500
ATS48C48Y	J (600 A) or L (650 A)	18,000	600	—	650	600
ATS48C59Y	L	30,000	—	700	700	700
ATS48C66Y	L	30,000	750	900	800	800
ATS48C79Y	L	42,000	1000	1000	1000	1100
ATS48M10Y	L	85,000	1350	1200	1400	1400
ATS48M12Y	L	85,000	1500	1600	1600	1600